THE CHEMIST

OCTOBER 1949 VOLUME XXVI No. 10

DR. HERMAN S. BLOCH

Chairman, Chicago Chapter, A. I. C.

(See page 383)

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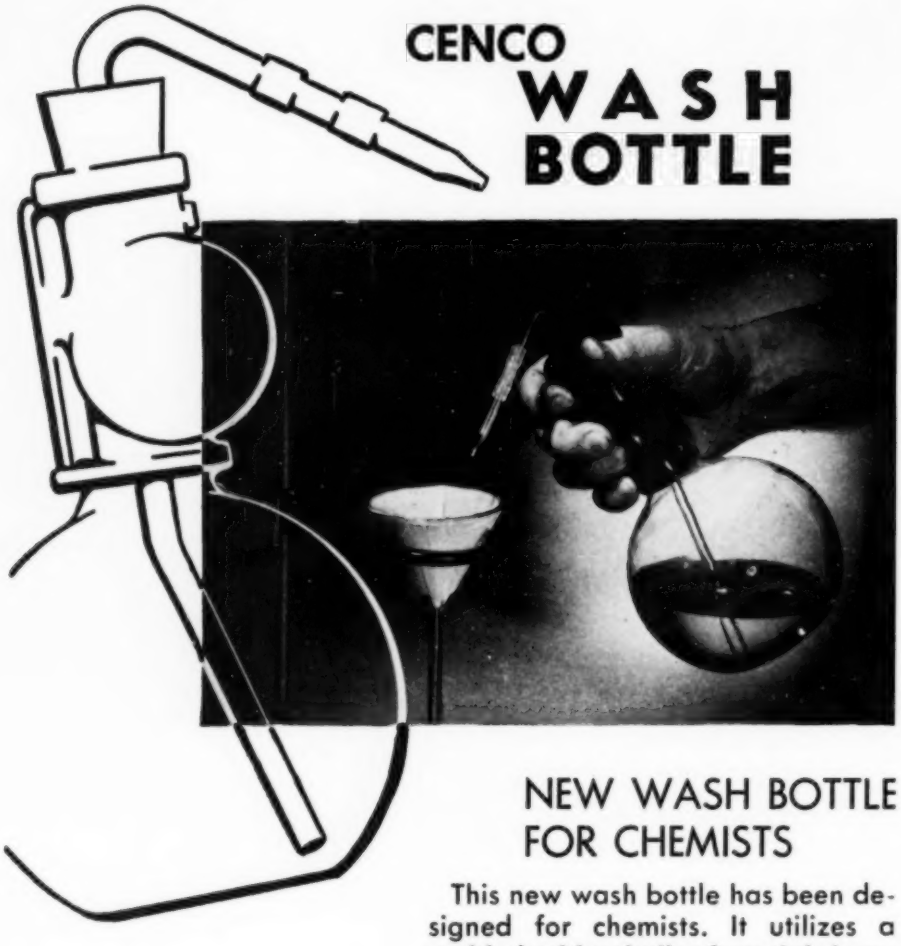

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SCHEDULED FOR EARLY ISSUES

The Chemists' Economic Status (Annual Meeting Paper), by Dr. Louis Koenig, F.A.I.C.
How Can A Chemist Increase His Value? by C. P. Neidig, F.A.I.C.
How Good an Employer Is Your Company? by Howard Nechamkin, M.A.I.C.
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A Challenge to Medical Research, Dr. Herman J. Schneiderwirth, F.A.I.C.
The Increasing Responsibilities of the Chemist, Ralph Lamenzo, F.A.I.C.
Other Material.

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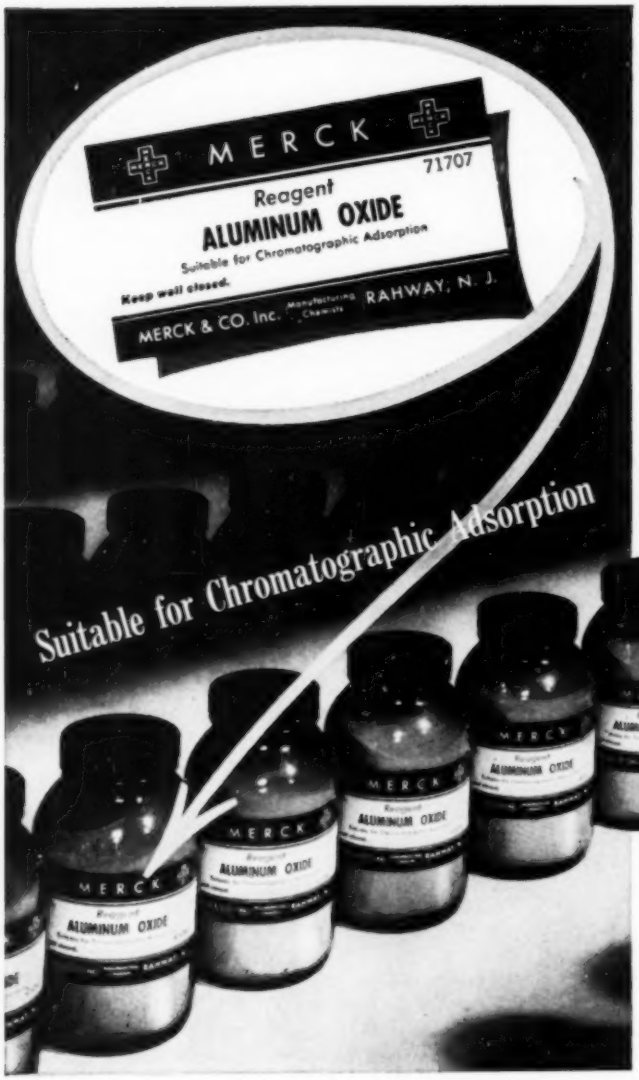
Cover Picture

Dr. Herman S. Bloch, F.A.I.C., is chairman of the Chicago AIC Chapter and coordinator of the Chemicals Research Division of Universal Oil Products Company, Riverside, Illinois. He was born in Chicago, June 15, 1912. The University of Chicago conferred the B.S. degree on him in 1933 and the Ph.D. degree in 1936. During 1935-1936, he held the Gustavus H Swift Fellowship. He has been employed by Universal Oil Products Company since 1936, first as a research chemist, then as a group leader, and since 1945 in his present capacity. Approximately forty patents relating to petroleum chemistry have been issued to him, and he has published articles in the fields of catalysis and hydrocarbon chemistry.

He is equally active professionally, being a member of the American Chemical Society, the American Association for the Advancement of Science, Sigma Xi, the Illinois Academy of Sciences, and the Chicago Association of Scientists and Engineers. He is treasurer of the latter association, a councilor of the ACS, a director of the Chicago ACS Section and one of its delegates to the Chicago Technical Societies Council. He has also been vice president of the Council, is now a director, and is serving as general chairman of the Second Chicago Career Conference, of which the Council is a sponsor. For two years, he was program chairman of the Chicago AIC Chapter, and while Chapter vice president, he also served as program chairman for the Twenty-sixth National AIC Meeting, held in Chicago this Spring. In 1947 he served as chairman of the All-Day Technical Conference held jointly by the Chicago Section of the ACS and the AAAS.

Dr. Bloch informs us that, "The primary aim of the Chicago Chapter this year will be to define in clear terms the objectives of the AIC; to translate these objectives into specific projects which will be the subject of extensive committee work; and to utilize these activities as the basis for attracting new members, especially younger chemists."



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EDITORIAL

Chemical Literature Unlimited

THE chemist today discovers that it is no small problem to keep up with the wealth of current chemical literature. Science is advancing fast. The almost barren period of the late war, when rigid restrictions frustrated publication, has changed into the time of rich fruitfulness. The technical publications, domestic and foreign, are swollen with excellent articles on chemical subjects. New books appear almost daily.

To the man in the laboratory who may be chlorinating an organic compound one week and working with electrolytic cells the next, with no knowledge of what will follow, the task of keeping up with literature must strike him as futile. He must compromise by looking over the standard publications and going through the abstract journals. The general manager must do likewise, if he intends to progress. The professor, or the research chemist devoted to a special project, may fare better. He can channel his reading into one field, though he may miss the dividends that come when research in an unrelated field is found to have applications in another. Those who concentrate on subjects such as fundamental research, market studies, industrial chemistry, and other fields, will still have to read rapidly and be amazed at the swift fleeing of time while they do so.

The attention of colleges and of those who envision the magnitude of future publications, if they continue at this rate, is being turned toward this problem. The authors of technical books are cooperating, in that some are so designing their books that anyone can look at them and pick out quickly, without reading the whole, the things of personal interest.

A new field would appear to be opening for chemists who are talented with ability to read rapidly and to summarize what is of interest.

Even now, some industrial firms employ in their libraries persons who select what is new in current literature for transmission to various departments. Those interested in chemistry who have these talents may actually prefer to read and abstract new developments rather than to do laboratory work. They can serve well in this capacity. Industry will soon realize the economic value and importance of the services of such specially trained chemists.

—V. F. Kimball

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Society for Applied Spectroscopy

The Society for Applied Spectroscopy will meet at 8:00 p.m., November first, at the Socony-Vacuum Training Center, 63 Park Row, New York, N.Y., to hear William L. Dutton, American Cyanamid Company, speak on "Semi-Quantitative Analysis for Metals by Emission Spectroscopy."

The 1949 fall meeting of the American Oil Chemists' Society will be held in Chicago, Illinois, at the Edgewater Beach Hotel, October 31st to November 2nd. C. E. Morris of Armour and Company is chairman, assisted by H. T. Spannuth of Wilson and Company as program chairman.

Jackson Is Manager of Croll-Reynolds

David H. Jackson, F.A.I.C., vice president of Croll-Reynolds Company, Inc., 17 John Street, New York, N.Y., manufacturers of steam jet vacuum equipment, has been made general manager of the firm, it was announced by the founders, Samuel Croll and Philip Reynolds.

Mr. Jackson, who joined the firm in 1930 as sales manager, was made vice president in 1937. He received the M.S. degree in chemical engineering from the University of North Carolina in 1920.

Plantinga with Johnson and Johnson

Dr. Oliver S. Plantinga, F.A.I.C., has been appointed director of research, cotton and gauze products, Johnson and Johnson, New Brunswick, N.J. He was formerly production manager of the Chemical Division of the Marathon Corporation, Rothschild, Wisconsin. After receiving two degrees from the University of Massachusetts, he obtained the Ph.D. degree from New York University in 1934.

Burright with Oklahoma University Press

Ora Blanche Burright, F.A.I.C., is now a member of the staff of the University of Oklahoma Press, Norman, Oklahoma. She is completing a new book, "An Encyclopedia on Foods," which will be published shortly.

Manpower and Industry

H. B. De Vinny

Assistant Director, Industrial Relations, The Davison Chemical Corporation

(A paper presented at a recent meeting of the Washington Chapter, A.I.C.) Baltimore, Md.

THIS subject covers a multitude of sins, both of commission and omission, but I shall try to confine my remarks to chemists and chemical engineers. Although I am sure that this also leaves the door wide open for soaring here and there into vast areas, where controversy can be avoided, I hope that these few remarks may be able to stimulate some emotional reaction, because it is only through such stimulation that we are able to air our views and to come up with concrete ideas which can be valuable in an improvement of these problems of manpower and industry.

With respect to chemists and chemical engineers, we can all agree that they are a vital and critical part of manpower requirements within our present and future economy. With the growth and development of our modern chemical and technical production potential, the personnel requirements for technical skill have been ever increasing, and although the present college enrollment indicates that the future will provide substantial numbers of technically trained young men in the chemical field, it is also quite apparent that we as a nation will be well able to use them.

As the mathematical and theoretical problems involved in the carrying forward of the atomic energy problem are planned and put on paper, the practical methods and techniques to be employed in the application of atomic energy are carried into the field of chemistry and chemical engineering, rather than into the field of mathematics and physics. So we must immediately accept the fact and the premise that the manpower requirements of industry for chemists and chemical engineers are of profound significance in the growing new field of scientific and industrial endeavor. In addition, we find on the horizon a flow of new chemical processes and products constantly being ferreted out in the research departments of big and little chemical companies all over America. This certainly points to a constant demand for the person with a technical education in the field of chemistry.

For a few years, the recent war retarded the flow of technical graduates from our colleges and universi-

ties, but with the war's end and demobilization, large numbers of veterans returned to renew their educational pursuits. The G. I. Bill of Rights also provided an opportunity to many veterans of obtaining a college education where under other circumstances it might not have been possible. Those particular circumstances have provided industry with a host of technically skilled personnel during the years 1947 and 1948, and we can look forward to a similar situation in 1949.

From then on, we should resume a more normal curve in the number of graduates for the succeeding years. There is an indication that the curve may dip somewhat due to the higher cost of college education, unless there is a continuance of present cooperative facilities. The expansion programs of the colleges and universities themselves may have a tendency to limit enrollments, as well as the fact that qualified teaching personnel are turning to other fields for a livelihood.

The Problems of Industry

With these thoughts, let us look at a few of the problems which industry recognizes within the area of its manpower requirements. We cannot discuss them thoroughly, but we can touch upon them and hope that they may stimulate you enough to have you consider what must be done to either readjust or at least re-orient our thinking, and help in the development of technical personnel.

Let me first name a few specific situations which seem common to the problem as a whole, and then briefly explain what is concerned with them.

1. The present and future demand for personnel with educational qualifications beyond A.B. or B.S. degrees.

2. The problem within industry of developing top level management qualifications of technical personnel for future leadership in industry.

3. A suggestion to technical societies or groups interested in adjusting or orienting the present curriculum of educational institutions, so that they may provide a more qualified group to meet the requirements of industry.

The Need

1. It is a recognized fact, based on industry requirements, that a decreasing number of personnel with masters or doctors degrees are available, yet the demand for such personnel in research and development programs remains very high.

Last spring, during a rather extended trip which I made to interview industrial relations and personnel executives, I was informed by several of these men, representing corporations carrying on extensive research programs, of the crying need for technical personnel with the doctor's degree or its equivalent. One executive made the astonishing statement that his company could use one hundred and fifty of such men immediately. Other companies reported similar situations in varying degrees.

Furthermore, there is little hope, and few examples, where the college graduate with a bachelor's degree in chemistry or chemical engineering will have the desire, the initiative, or the determination to continue his educational pursuits, after he is once hired and begins his career in industry. There are good and valid reasons why this does not occur and they are quite fundamental. One way or another, the young man went to college and acquired a technical educaton so that he could quickly get off the payroll of "the old man." Not too much thought or direction as to his ambitions, talents, or future life were considered when he finished high school or private school. In the majority of cases, he probably acquired a technical education because he was pushed into it as a means of being able to get a fair paying job in four years. Then "the old man" could buy a new car, or fix up the house, or do a number of the things that had to be foregone during the college years.

With little direction from parents, who might be looking for potential talents that might be inherent for further development; with an urge to shed the financial responsibility of supplying a technical education, and further, with little help from the colleges (which might recognize potential talent if there were personnel programs designed for this purpose), the student has as his only goal and desire, to get out of college and to get a job. He gets the job. He gets married. He acquires family responsibilities, and he's done for, so far as continuing to carry on further his educational development.

I am not here to say whether it is right or wrong, but I can say that industry's requirements for personnel with more than a bachelor's degree is very great and will continue forever, as we follow the path of progress in technology.

Suggestions

Let us see then if there are some constructive suggestions to be made which may be considered by all of us who are interested in this critical problem of manpower and industry.

From industry's point of view, we may be justified in accepting the premise that a higher rate of pay as a starting salary is necessary as an incentive for postgraduate work and the goal of a doctor's degree. Also it would help to have a well-rounded public relations program in the accredited colleges and universities, so that the undergraduate would be well acquainted with the advantages to be gained by the additional years of study and work necessary to achieve this goal.

From the educational institutions should come an intelligent personnel administration program that has as its purpose the job of selecting, screening, counselling, and then creating, within the mind and philosophy

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of the chosen undergraduate, the desire to obtain the advantages of higher education in the technical field.

Industry may be accused of being remiss, because it has neglected to make the remuneration for higher education attractive enough to create this desire, but at the same time, it seems that the institutions of learning have likewise failed in their own business. Where they neglect the field of human relations and the possibilities of personnel administration with their own undergraduate body, they are in turn neglecting to supply the nation with persons of higher edu-

cational qualifications who were potential prospects while undergraduates.

If we can accept these statements as the probable causes of this problem, which indicates a growing demand and need for this kind of manpower in industry, we can then propose the following:

(a) That industry may have to reestimate the remunerative value of its present salary schedules for positions requiring this type of personnel.

(b) That industry and other interested groups find ways and means of establishing more scholarships in order to attract and support potential candidates for further study and educational development.

(c) That the educational institutions create and develop adequate personnel programs that have as one of their purposes to screen out, to counsel, to develop and create a desire among selected personnel to attain the advantages of higher educational qualifications.

Management Personnel

2. One of the most critical problems of manpower within industry is the job of supplying top-flight—top-level management personnel. Again industry itself may be easily accused of failing to train properly its technical personnel during the apprentice years. However, at the present time, most of the progressive business management groups are carrying on training programs at all levels, with the idea of affording their personnel an opportunity of knowing what makes the business tick, what its policies are, what its problems mean, and in general, carrying on a course of sprouts in "Business Management Principles."

In the evolution of these programs, rather close attention is directed toward selecting and screening the personnel for characteristics that denote leadership qualities, initiative, and ability to assume resposibility. While the average technical college graduate may evidence a sincere interest in his own field of endeavor, and be doing a good job in the position he occupies, it is also true that in many cases it is harder to find the leadership qualities, the initiative, and the desire to assume responsibility, among the technical groups than it is among the practical, experienced employees who have come up through the ranks. I do not infer that this lack of interest in responsibility is confined only to chemists or chemical engineers. It seems to be a general attitude which is reflected by most of the present day college graduates.

Alonzo Stagg, football's eldest statesman, in a recent statement said, "It is my opinion that the youth of today, on or off the gridiron, is not trained for total responsibility, as the youth of my earlier years." Note those words, "is not trained for total responsibility." Has he discerned what may be the keynote to one of

our overall problems in the question of manpower and industry?

Those with practical experience seem to have absorbed the knack and ability to get along with other personnel extremely well. In acquiring that ability, they have developed definite characteristics that denote leadership. Their work history will indicate that they have steadily progressed from job to job, with a regularity that identifies their progression with some intangible quality that in the end denotes this ability to manage and lead. If they have any technical education, it was acquired through years of laborious study at night school. In the meantime, they have gone on working and accumulating experience in associating successfully with people, getting along with them, learning how to direct them in small groups, and gradually developing their talents in the wider field of business management.

An outstanding example of how effective this kind of experience can be is pointed to with pride by such educational institutions as the Drexel Institute of Technology and Cincinnati University. These schools carry on a cooperative, educational program where a basic requirement is that the undergraduate curriculum is divided into periods of study and periods of "on the job" work.

But the point I want to stress is that it seems harder to find top-level management characteristics in the technically trained personnel group than it does in the group with the practical experience and perhaps limited educational background. Has their educational training limited the majority of these persons to thinking in one direction, and only in their special field? Are they in a rut because of specialized training, and if they are, what can we suggest to help change this apparent condition?

The Character of Education

3. Now I may be "out on a limb" for having made this rather general statement, but again I hope I'm giving you something to think about, when I get to the concluding part of my remarks. In the formative undergraduate years, when the young man is acquiring his education, perhaps more attention should be directed toward subjects such as human relations, labor relations, industrial organization, and the economics of business.

Many of our leading educators and influential people in public life are thinking in terms, which translated to my own simpler terms, substantiate this point.

Recently the "Town Meeting" of the air had as its subject, "Are We Educating for the Modern Man." Let me quote a few excerpts from some of the statements made.

The panel consisted of Senator Paul Douglas of Illinois, Dr. Stoddard, director of Illinois State Department of Education, Dr. James

Killian, president-elect of Massachusetts Institute of Technology, and Clifton Fadiman, book reviewer and literary commentator.

Senator Douglas speaking: "We need to develop an emotional maturity to meet the demand of our technological development." "We must educate more in human events and human history."

Dr. Stoddard speaking: "The need for the study of human relations that will help develop the individual under stress." "Technology is not enough for the human spirit."

Dr. Killian speaking: "Specialized education must be fused with other fields of education." "We must encourage the exceptional student."

Clifton Fadiman speaking: "Greater need for study of political economy and social sciences."

I recognize that it is far from an easy task to obtain a bachelor's degree in chemistry or chemical engineering. It takes a lot of hard work, study, and application for the majority of students to complete four years and be eligible for graduation. Each year the standards are higher and they always should be maintained at the higher level. But I feel quite certain that if the curriculum and scope of the educational program could be enlarged to include subjects such as referred to above, our chemists and chemical engineers would enter industry better equipped to do the kind of a job that would open more doors of opportunity to have a better understanding of their original responsibilities and to provide industry as a whole with a larger group of potential top level managers.

Personnel Counselling

It is also my feeling that the colleges and universities must develop within their own areas of responsibility, better personnel administration programs. In most industry today, more and more emphasis is being placed on what is termed wage and salary administration, but the term is somewhat misleading in reference to what I specifically want to point out. Within the administration of this program, there is usually a merit rating or bi-annual review of all personnel. This gives management at various levels an opportunity to single out, to study, and to help direct the individual in his work, and to point out ways of improvement that can be of benefit to him. A similar technique could be adopted and implemented for educational institutions to help the undergraduate.

Our present rigid methods of education are, and should be, under closer scrutiny with respect to their performance, to supply the nation and its industrial economy with a satisfactory product.

You will be interested in the remarks recently made by Francis Keppel, dean of the Harvard Graduate School of Education, which lend emphasis to these suggestions. Dean

Keppel who is thirty-two years of age, is investigating the present system of higher education in America. He appears to be approaching this task with a refreshing viewpoint. In Baltimore recently he said, "I can't say I'm dissasisfied with American education, because I don't know enough about it to be dissatisfied. I came to Baltimore to find out what these private-school people mean by a good teacher.

"Education has suffered because we have always thought of it, in an unstated assumption, as a good thing, and that the more of it we had the better off we'd be. The trouble is that not enough parents, and enough able people, have criticised it. We need criticism. The more the merrier. We've had some, but not nearly enough.

"Education is the mechanism which affords mobility to classes and groups in our system in the United States. It is of vital importance to us and our institutions.

"Among other things, we must locate the children in schools with superior abilities, and I mean intellectual, artistic, mechanical and all other abilities. We must study the effect of their homes and environments upon them. We must improve our ability to predict what will happen to them in many ways.

"We know a lot about elementary education, and though there are still needs there, we need to concentrate on some of the higher levels."

That seems pretty good to me, and I will close by asking you, how does it seem to you?

Degering at Armour Research Foundation

Dr. Edward F. Degering, F.A.I.C., professor of chemistry and director of research projects at Purdue University, has been named assistant chairman of Chemistry and Chemical engineering at Armour Research Foundation of Illinois Institute of Technology, Chicago 16, Illinois. Dr. Louis Koenig, F.A.I.C., chairman of the department, made the announcement.

Dr. Degering has been associated with Purdue University since 1930. He is the author of more than 150 articles in scientific journals and of seven books in the field of organic chemistry. He holds more than a dozen patents on organic syntheses. At the Armour Research Foundation, Dr. Degering will supervise research projects in biochemistry, organic chemistry, literature surveys, and rare chemicals.

Chipkin With Hilo

Simon Chipkin, M.A.I.C., is now with Hilo Varnish Corporation, 42-60 Stewart Avenue, Brooklyn 6, N.Y., where he will devote his time to trade sales products. He was recently with Heyward Paint and Varnish Company.

Best Foot Forward

Luella Canterbury

Psychologist, Analyst, Lecturer. 410 *S. Michigan Avenue, Chicago* 5, *Illinois*

(A talk presented at a recent meeting of the Chicago Chapter, A.I.C.)

MY SUBJECT, "Best Foot Forward," is to include briefly some of the findings which psychological testings have discovered which will enable the chemist to improve his economic status.

This problem was first called to my attention many years ago when the Massachusetts Institute of Technology completed a survey and study of men doing scientific work in order to determine what qualities made for successful recognition. Technical efficiency was rated at 15 per cent and personality at 85 per cent. Immediately I began to ask, what kind of a personality? In all tests dealing with scientific professions we watched and studied for recurring patterns which would give us a workable basis of fact.

We noted that the tendency to develop an unsymmetrical personality is stronger than is generally recognized. The advantages of an all around personality are obvious. It is natural for us to pursue the activity or activities in which we are interested. As we advance in adult life we tend to become specialized. Few of us escape this tendency.

There is the strong probability therefore, that we will neglect the development of certain aspects of our personalities. No one will contend that the man or woman should be equally efficient physically and mentally. What we do wish to emphasize is that he should take care that the physical, mental, emotional, and social aspects of his personality are developed to a degree consistent with his age and the demands of his time and work; that his personality should not be weakened because of his neglect of one or more of the aspects of his nature.

We should know how to deal with people. This is more than just getting along with people. It means that knowing others is the counterpart to knowing yourself. The better you understand your own motives, the better you will be able to evaluate your relations with your coworkers above and below you. You give orders to one group and take them from the other. This chain of authority is extremely important.

The well-adjusted individual looks

at his superiors as men of greater training and experience and takes their guidance and direction without prejudice. By the same token, through knowing people he will be considerate of his subordinates.

We should have the ability to get along well with others to avoid friction and the rubbing of delicate temperaments. To avoid trouble is one of the primary requirements for success in the world. Maladjustment in any walk of life brings discouragement, discontent, and distress. It tends to make personality unattractive; it prevents advancement and gives a feeling of insecurity.

We must know how to stay mentally and physically healthy. The reasons are self-evident, yet health is ignored. This narrow concentration on the work, if it excludes family and social life, or exercise, relaxation and recreation, will result not only in physical strain but emotional tension as well.

Happiness—a By-Product

Happiness is a by-product of the successful pursuit of accomplishment. Accomplishment is the goal of rational human activity. To be adjusted, to be liked, and to be effective are means to this end.

The chemist in his tests has a reproductive imagination, with the auditory sense perception usually highest. The wonder emotion is more highly developed. Individuals with this accent we refer to as "Wonder Types." Often we find they become so absorbed in ideas and experiments that they entirely forget other people. The fear emotion is strong. This excites the mind to gather many facts before it comes to a conclusion. It gives the scientific approach.

Dr. David Seabury, psychologist, formerly of Columbia University, thinks: "It is foolish for a wonder type to become tense and ashamed because he is not able to care for commercial details as efficiently as other types." It is foolish to become tense and ashamed. That is not a scientific way of handling the problem. The chemist in seeking the truths of nature and adopting them for the benefit of mankind is doing a great service, and the "laborer is worthy of his hire." Human relations are also a part of this same nature. All aspects of human behavior follow the law of cause and effect just as surely as other natural phenomena.

Each man possesses a highly individual set of defenses . . . the techniques and tricks and dodges which he himself has learned as a result of his successes and failures, his pleasure, and his pains. The ways we meet dangers and threats of danger are highly personal. For instance, one particular man has been taught to fear a situation without any regard to its actual destructive power. Here belong the fear of being laughed at, the fear of being called a coward, the fear of not being loved. These

fears are personal; they differ from man to man, but their power is real and immense. The threat of "Hurt" is without doubt one of the things which keeps us moving. If it were not for "Hurt," a lot of us would be comfortable cabbages. We talk about hurting a person's pride or self respect, and we talk about physical pain. These two hurts are not the same and yet we use the term so often. We will use it here, if we will remember that we are talking. about the "Wish to be comfortable and the need to avoid pain." Both represent the incentives to action. Learning which hurts most in the long run, where and when to go and what to do when you get there, is the essence of growing up, staying alive and enjoying mental health. Know how to think.

The Four Basic Wants

Certainly you will agree that these are challenges which confront the chemists. In all the courses which I have studied in economics, all the books I have read on the subject, it would seem that the four basic wants of mankind have been left out. These four universal wants are: Want of Response; Want of Recognition; Want of Security; Want of New Experience. These wants are important to know. While all are in each individual, one or two generally predominate. In doing an analysis for a chemist who was very discouraged, we noted that he had a strong want for New Experience, yet for many years he had been doing routine scientific work. The problem he brought was how could he make more money. He had not taken into consideration the main factor he was working with, which was himself. He was dull, unenthusiastic, frustrated, and sick. When he understood himself better, knew his basic want, and changed his work into more experimental chemistry, his economic status improved. There was a new warmth and energy in the personality. The health became vital. His improved personality made him of more value to himself and his fellow man. His imagination took hold, blue-printing a higher service and using higher levels of the mind. Indeed thinking is the higher courage.

Thinking in terms of your goal, how do you look at your job? As a source of money? Prestige? Security? Or something else?

Some years ago, I was doing some psychological testing for an employment agency, and at first it was a bit of a shock to hear men trained in scientific work ask for a job instead of some specific kind of placement. This absence of a goal brought out the fact that not enough attention was given in our educational institutions to the development of this aspect of personality. The successful person has a strong urge to accomplishment and gets pleasure from achievement in itself. One of Thomas Edi-

son's assistants told me once that they had been working on an experiment for three years. When the final testing was done, it was a failure. The assistants were pretty discouraged. Then Edison took a deep breath and very cheerfully said: "Well, gentlemen, at least we know one thing. This won't work. Now we can begin all over again."

Of course, a good salary is appreciated, a title and recognition or reward, and they usually come with the right attitude and focus. But they are not ends in themselves. Do you actually like your work and are you stimulated by the satisfaction of a task well done?

Mental Direction

In our education we have given little attention to the individual's imagination. Whatever a man's belief, and quite apart from his quotient of cold reason, imagination determines the quality and trend of his thought. The pictures on the screen of his mind may flicker and grow dim, but they prophesy his future as certainly as an architectural plan proclaims the structure to be built according to its design.

The chemist should not look for a job, but for a place to work where he may carry out his creative urges and wants. Only then can he put his full energies to work. In this Atomic Age, the chemist is a very important person. I understand that in the Manhattan project, the nuclear physicists were brought to a standstill until the chemists analyzed the properties of a tiny speck of plutonium. We in this new era are going to be working together more and more. Therefore the necessity of understanding ourselves and each other more thoroughly is as important as familiarity with the chemicals we work with in the laboratory. The scientific method underwrites the existence of most of us, no matter how much we may deplore "materialism." As Stuart Chase very aptly puts it: "No science, and back to the jungle; more science in the form of lethal weapons, and back to the jungle by another route. Mankind is inextricably involved at every step with applied natural science, but has only recently begun to give attention to civilization itself in a scientific way."

There are those who say that attention to the problems of living has come too late, yet our present inadequate survey shows far more knowledge available than skeptics have ever imagined. Are you chemists, with your emphasis on the discipline that science can be pursued only by methods of the most scrupulous integrity (you cannot lie even to yourself), going to let personality problems which include economic status go into the unscientific manner of by guess and by golly? The very fact that you inquire into this subject proves that you are not.

Psychologists are not as far advanced as they should be. It is a new field and psychology is the youngest of the sciences, but from the tests and analyses which I have given and observed from others, I am sure we are giving too much attention to aptitudes and not enough to the mental imagery and beliefs of the individual as he sees himself and his responsibility in relation to his fellow man.

The Contradictions

There are too many contradictions in our beliefs to make for economic stability. People are bewildered about their jobs, about money, about marriage, about religion, about the growing role of Government, about their children, about their very souls.

The first contradiction to be considered is that between competition and material success on the one hand, and brotherly love and humility on the other. On the one hand, everything is done to spur us toward success, which means that we must be not only assertive but aggressive, able to push others out of the way. On the other hand, we are deeply imbued with Christian ideals which declare that it is selfish to want anything for ourselves, that we should be humble, turn the other cheek, be yielding.

Under the pressure of this existing idealogy, even the most normal person is constrained to feel that he amounts to something when successful, and is worthless if he is defeated. This presents a shaky basis for self-esteem. Competitiveness and its potential hostilities between fellow beings creates fears and diminished self-esteem, with the result psychologically in the individual of feeling that he is isolated. Emotional isolation is hard for any one to endure; it becomes a calamity if it coincides with apprehensions and uncertainties about one's self.

Psychology, if it is to help the individual, must join with the social sciences. No one lives to himself alone. The beliefs of the group, many of which are false, may be damaging, as all thought has a tendency to clothe itself in its physical equivalent.

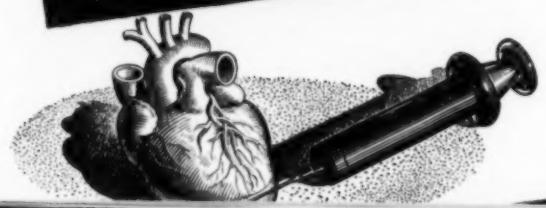
You, the chemists of today, are already fitting into the larger picture. More money is being appropriated for chemical research. The chemist is important! In this new era the chemist must see himself and his work as a valuable part of the whole scientific, social, economic, political world. With this constructive picture in mind, the personality steps out with "The Best Foot Forward." The inner picture of what we are and want to be today creates and re-creates the man of tomorrow.

Stavely Elected

Dr. F. W. Stavely, F.A.I.C., director of research of the Firestone Tire and Rubber Company, has been elected chairman-elect of the Division of Rubber Chemistry of the American Chemical Society.

FROM TOOTH PASTE

TO HEART STIMULANTS



Technical

GLYCERINE NEWS

AN EFFECTIVE METHOD OF TREATING PERITONITIS by glycerine application is described in a recent medical paper. Drs. E. D. and R. W. Smith report in *The Southern Surgeon* that glycerine induces drainage from infected tissues and exerts antiseptic and bactericidal action on the bacteria of peritonitis. At the same time, it permits normal functioning of the body cells to promote healing. (D-17)

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★ ★ ★

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★ ★ ★

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I should like to know the source of those items appearing in Technical Glycerine News which I have checked below.

☐ D-17 ☐ D-18 ☐ D-19

NAME.....

COMPANY.....

ADDRESS.....

FLORENCE E. WALL

Appointed Councilor - at - Large to A.I.C. National Council. **(See page 410).**

Arbuckle to University of Maryland

Dr. Wendell S. Arbuckle, F.A.I.C., recently associate professor of dairy manufacturing at North Carolina State College, is now professor in charge of dairy manufacturing at the College of Agriculture, University of Maryland. In this capacity, he also serves as chief examiner of the Maryland Dairy Inspection Service. He received the Ph.D. degree in 1940 from the University of Missouri. From 1940 to 1946, he was on the faculty of Texas A. & M. College.

Chemical Engineers to Meet

The 1949 annual National Meeting of the American Institute of Chemical Engineers will be held in Pittsburgh, Pa., December 4th to 7th, at the William Penn Hotel.

Chemistry Section of AAAS

The Chemistry Section of The American Association for the Advancement of Science will hold its annual meeting in New York, N.Y., December 30-31, 1949, in The Statler Hotel.

A symposium on "Progress in Chemistry" is planned by Prof. George Glocker of the State University of Iowa, and a symposium on "Some Recent Advances in Medicinal Chemistry" is being arranged by Dr. Robert S. Shelton of the William S. Merrel Company. Dr. Ed. F. Degering, F.A.I.C., Department of Chemistry and Chemical Engineering, Armour Research Foundation, Technology Center, Chicago 16, Illinois, is soliciting papers for a general session. Titles and abstracts of general papers should be sent to him on or before the fifteenth of November. Come and enjoy this unusually good program.

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Metal Hydrides Appoints Banus

Metal Hydrides, Inc., Beverly, Massachusetts, announces that Dr. M. D. Banus, has been added to its research staff. He will replace Dr. Albert E. Finholt who resigned to become assistant professor in chemistry at St. Olaf's College, Northfield, Minnesota. Dr. Banus received the doctor's degree from Massachusetts Institute of Technology. During the war, he served as first lieutenant in the Army Signal Corps, ETO.

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AIC Annual Meeting 1950

The 1950 Annual Meeting of THE AMERICAN INSTITUTE OF CHEMISTS will be held in New York, N.Y., in May.

Dr. Maurice J. Kelley, F.A.I.C., director of research and development of Nopco Chemical Company, Harrison, New Jersey, has been appointed chairman of the Committee on Arrangements for the meeting.

John E. McKeen, F.A.I.C., president of Charles Pfizer and Company, Brooklyn, New York, has been appointed chairman of the Banquet Committee.

Further information will be announced in succeeding issues of THE CHEMIST.

Dr. Alexander Silverman, F.A.I.C., head, Department of Chemistry, University of Pittsburgh, delivered an illustrated lecture, "What's New in Glass," before the St. Joseph Valley Section of the American Chemical Society, at Notre Dame University, May 12th. On May 25th, he addressed the Early American Glass Club of Pittsburgh, on "Joseph Locke and His Work." June 13th, he spoke before the National Convention of the Mine Inspectors Institute of America, in Pittsburgh, on "New Developments in American Glass Manufacture."

Communications

Consider Chemical Investments

To the Editor:

In reference to my comments on the "Forty-Plus Problem" (The Chemist, September 1949, page 371), may I add the following? Within the general scope of the argument presented by me, there is a matter which is, strictly speaking, of no direct concern to the chemical profession, namely that of industrial investments. It may be briefly touched upon, since it has been discussed repeatedly from every possible angle in recent industrial releases addressed to the chemical profession. There can be no doubt that a discriminatory policy directed against people past forty must have a pronounced effect on industrial investments. A reduction of the relative security of employment in the forty-plus bracket will definitely lower the ratio of investments to savings, thereby augmenting still further the current scarcity of venture capital.

In estimating the magnitude of this effect, one must consider two factors. First, people in the forty-plus age group as a rule probably have accumulated more savings than very young industrial employees, who, as likely as not, have no savings at all. Second, the population as a whole is aging. In other words, a higher proportion of the population will save more and invest and spend less, as security of employment is threatened to an increasing extent by discriminatory policies which exclude people who are "too old."

As a result of this over-saving, a lag in the productive investment of capital must necessarily arise. In the long run, any such lag can only be offset by government subsidies, because inflation is a temporary expedient. Government subsidies, in turn, mean higher taxes.

A consideration of these questions may very well affect the attitude of an industrial management which is concerned about the lack of venture capital, but at the same time insists on applying rigid age restrictions which are directed against chemists and industrial employees in general.

—L. M. Blumenthal

Faraday's Birthday

To the Editor:

September 22nd was the 158th anniversary of Michael Faraday's birthday. The perennial freshness of his genius, which caused Sir William H. Bragg to say, "Very few men have changed the face of the world as Faraday has done," is manifest right down to the present in which it re-

appears in the form of a classical, mechanical theory of electricity, based on the properties of electric field matter, by Prof. Ludwig Flamm. (Cf. *Proceedings of the Academy of Sciences,* Vienna, Austria, 1944-1947.)

—Dr. E. E. Butterfield, F.A.I.C.

Faraday on Clarity

To the Editor:

There follows a quotation printed in *Chemistry and Industry,* August 20, 1949, in an address entitled "Scientific Communication" by H. W. Cremer as president of the Institution of Chemical Engineers. Mr. Cremer quotes from Sir Edward Appleton in an address to the Royal Institution shortly after he had been awarded the Nobel Prize in physics. The quotation is from a letter of Michael Faraday to Clerk Maxwell. Its sense is still pertinent and could well be called to the attention of everyone working on the mathematical side:

"There is one thing I would be glad to ask you. When a mathematician engaged in investigating physical actions and results has arrived at his conclusions, may they not be expressed in common language as fully, clearly, and definitely as in mathematical formulae? If so, wouldn't it be a great boon to such as I to express them so, translating them out of their hieroglyphics, that we also might work upon them by experiment? I think it must be so, because I've always found that you could convey to me a perfectly clear idea of your conclusions, which, though they may give me no full understanding of the steps of your process, give me the results neither above nor below the truth, and so clear in character that I can think and work for them. If this be possible, wouldn't it be a good thing if mathematicians, working on these subjects, were to give us the results in this popular, useful working state, as well as in that which is their own and proper to them?"

—Karl M. Herstein, F.A.I.C.

The Question

The following paragraphs are taken from the January, 1949, issue of *Chemical Products and Chemical News,* London:

The American Institute of Chemists, in reflective mood, has been asking its Founder members a very pertinent question, "What advice," they ask, "would you give to young chemists who are starting out today? H.W.S. Colstat* produces his answer —a good one—with a bang. "Think more of what they can put into the job than what they can get out of it." F. G. Manwaring says, "Cultivate the ability to get along with and to cooperate enthusiastically with fellow workers." Perfectly sound advice, is that of N. R. Koches who said. "Select your field of interest and become thoroughly informed in it."

J. W. McBurney feels strongly on the matter—" I would advise a young

* This name should have been W. S. Calcott.

chemist to get some other title, say physicist or some kind of engineer, a knowledge of chemistry is useful, but *don't be classified as one!*" (our italics). Dr. S. J. Lloyd is even more pungent—"Use your chemical training as a background for business as lawyers do with theirs. *Only the geniuses and the drones should actually practice chemistry as such.*" (Our italics again.)

So now we know what leading American chemists and professors of chemistry think of the profession and its practitioners. Do senior British chemists think the same? We shall be glad to know.

Correction

On page 373 of the September issue of THE CHEMIST, in the last sentence of the letter by L. M. Blumenthal, the word "observed" should have appeared as "obscured."

Dr. Gustav Egloff, Hon. A.I.C., plans the following speaking engagements: October 5th, Roosevelt College, Chicago, "Have We Enough Petroleum?" October 6th, Northwestern University Student Chapter of the American Institute of Chemical Engineers, "The Engineer in the Oil Industry;" October 19th, in connection with the observance of Oil Progress Week, Kiwanis Club of Milwaukee, "Research in the Oil Industry;" October 20th, Kiwanis Club, Racine, Wisconsin, "Research in the Oil Industry." October 26th, Petroleum Section of the 37th National Safety Congress and Exposition, Congress Hotel, Chicago, "Pioneering with High Pressure Oil Equipment."

Kammermeyer Heads University Division

Dr. Karl Kammermeyer, F.A.I.C., moved, in September, to Iowa City, Iowa, where he heads the Division of Chemical Engineering of the University of Iowa. Previously, he was manager of research and development of the Glenn L. Martin Company, Chemicals Division, Baltimore, Maryland. For five years he was director of research of Publicker Industries, Inc., and from 1939 to 1942, he taught chemical engineering at Drexel Institute in Philadelphia. From 1933 to 1939, he was employed by the Pure Oil Company and the Standard Oil Company of Indiana. He received the D.Sc. degree from the University of Michigan in 1932.

Florence E. Wall, F.A.I.C., was guest speaker on the program of the Science Forum, a regular feature of the General Electric Station, WGY, Schenectady, on September 14th. She spoke on "Cosmetics and Cosmetology as a Field for Scientific Research." She discussed the same topic, October fourth, on the ACS program which is a weekly feature on Station WNYC.

Necrology

Winslow Samuel Anderson

Dr. Winslow S. Anderson, president, Whitman College, Walla Walla, Washington, died November 6, 1948, following an operation at Rochester, Minn. Dr. Anderson was born in Portland, Maine, July 28, 1898. He received the B.S. degree from Bates College, the M.S. degree from the University of Minnesota, the D.Sc. degree from Rollins College, and the LL.D. from Florida Southern College. From 1923 to 1925 he taught at North Carolina State College, followed by a year of teaching at the University of Minnesota. From 1925 to 1928 he maintained his own laboratory as a consultant, leaving this field to serve as dean of the college and professor of chemistry at Rollins College. In June, 1942, he was inaugurated as president of Whitman College.

Dr. Anderson was active in civic affairs in Walla Walla. He was a member of the planning commission, past president of the Rotarians, and president of the Washington State society of the Sons of the American Revolution. As president of Whitman College, he was considered "an unusual combination of a scientist, educator, and smart businessman." He laid the foundation for a building and endowment program for the college, and organized it along more efficient lines. He summarized one of the important responsibilities of the college president as follows:

"One of the important responsibilities of a college president is to discover great teachers. It is perhaps his most difficult task, especially when the competition from industry and government is so keen. Not only do we have the problem of finding great teachers but also we have that of keeping them. This means that we must provide a pleasant environment, modern equipment, and adequate compensation. This, then, is our problem and task for the future."

Dr. Anderson became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1939.

SASI Adopts Official Publication

Dr. Stewart J. Lloyd, F.A.I.C., president of the Southern Association of Science and Industry, Inc., 5009 Peachtree Road, Atlanta, Georgia, announces that the association has adopted as its official publication the new *Journal of Southern Research*. Dr. Lloyd said this "would enlarge the horizons of both scientists and business men. Scientists need to be reminded of practical considerations, while business men needed to think along more technical lines.

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National Council Meeting

The next meeting of the National Council, A.I.C., will be held November 9, 1949, at The Chemists' Club, New York New York.

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Florence E. Wall, *At-Large*
James R. Withrow, *At-Large*
Lincoln T. Work, *At-Large*

September Meeting

THE 260th meeting of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS was held September 23, 1949, at 6:00 p.m., at The Chemists' Club, New York, N.Y. President Lawrence H. Flett presided.

The following councilors and officers were present: Messrs.: C. C. Concannon, L. H. Flett, K. M. Herstein, F. A. Hessel, E. H. Northey, W. T. Read, L. Van Doren, J. R. Withrow, and L. T. Work. V. F. Kimball was present.

President Flett announced that:

(a) Dr. Maurice J. Kelly, F.A.I.C., had been appointed chairman of

the Committee on Arrangements for the 1950 Annual Meeting of the INSTITUTE. It was suggested that no meeting be held on a Saturday, and that a two-day meeting be planned.

(b) John B. Calkin is planning to organize a Chapter of the INSTITUTE in New England.

(c) The Ohio Chapter will resume activities soon.

(d) Each member of the INSTITUTE should try to bring in five new members.

The Secretary, with regret, reported the following deaths:

A. H. Grimshaw, F.A.I.C., on April 20, 1949.

R. S. Cook, F.A.I.C., on June 18, 1949.

Homer Adkins, F.A.I.C., on August 10, 1949.

Vincent J. Farley, M.A.I.C., on August 15, 1949.

William Ralston, F.A.I.C., on April 25, 1949.

The Secretary's report, showing a total of 2414 members, was accepted.

Letters from Paul H. Horton, F.A.I.C., were presented, in which he told of plans to arrange informal meetings of AIC members in the Southwest.

The Treasurer's report was presented and accepted.

Dr. Work reported as Chairman of the Committee on Honorary Membership. Upon motion, it was agreed to make all Medalists Honorary Members. Upon motion, the recommendation that Honorary Membership be conferred on Dr. Harry Fisher, Frank G. Breyer, Dr. Roger Adams, Dr. Alexander Schwarcman, and Dr. Gustavus Esselen, was approved.

Gene Abson, F.A.I.C., was appointed to succeed J. M. McIlvain who resigned from the Committee on Honorary Membership.

The resignation of J. M. McIlvain from the National Council, because of new duties which do not permit him to continue to devote time to the Council, was accepted with regret and with appreciation for his services. To fill the vacancy left by Mr. McIlvain, Miss Florence E. Wall, who received the fourth highest number of votes for Councilors in the May, 1949, election, was appointed. She will complete the term which expires April 30, 1951.

Mr. Herstein reported for the New York Chapter. In a discussion on Chapter rebates, Chapters were reminded that they can increase income by increasing membership.

Dr. Read reported for the Washington Chapter. He plans three committees: One to consider plans for any future depression; one to work with the colleges; the third to cooperate with other organizations to seek out talent in the high schools.

Dr. Withrow stated that he will serve as delegate from the Institute to the celebration to be held by Marietta College in October. He

will also attend the Honor Scroll Award of the Chicago Chapter to Dr. Otto Eisenschiml, F.A.I.C., on October 7th.

New members elected were:

FELLOWS

Chaney, Newcomb K.
Director of Research. Consultant. United Gas Improvement Company, 1401 Arch Street, Philadelphia, Pa.

Clay, Cassius L.
State Chemist and Director, Division of Food & Drugs, Louisiana Department of Health, 422 Chartres Street, New Orleans, La.

Greenfield, Charles
Chemical Engineer, Vitol Processing Company, Carlstadt, N. J.

Kirkpatrick, Sidney D.
Vice President, McGraw-Hill Book Company, 330 West 42nd Street, New York 18, N.Y.

Kreysa, Frank J.
Assistant Professor of Chemistry, St. John's University, Brooklyn, New York.

Langer, Theodore W.
Research Chemist, Linde Air Products Company, Tonawanda, N.Y.

Pitts, Frank P.
Professor, Department of Chemistry, Medical College of Virginia, Richmond, Va.

Turkel, Henry
Consultant, 1302 Industrial Bank Building, Detroit, Michigan.

MEMBERS

Fein, Marvin
225 West End Avenue, New York 23, N.Y.

Masuelli, Frank J.
Instructor of Chemistry, Virginia Polytechnic Institute, Blacksburg, Va.

Perlman, Lester J.
Sales Office Manager, The Edwal Laboratories, Inc., Chicago, Ill.

Schuler, Robert H.
Assistant Professor of Chemistry, Canisius College, Buffalo 8, N.Y.

ASSOCIATES

Luttinger, Lionel B.
Chemist, Carl Schleicher and Schuell Company, 116 West 14th Street, New York, N.Y.

Zarcoff, Samuel
Fuel Analyst, Fuel Laboratory, Pittsburgh Testing Laboratory, 421 Canal Street, New York, New York.

Steele Appointed Chairman

Frank J. Steele, M.A.I.C., chief pharmacist, Greenwich Hospital, Greenwich, Conn., is chairman of the Committee on Standards of the Nycon Hospital Purchasing Association. This association was recently organized to promote closer association between members of the hospital purchasing field and to study hospital supplies and equipment as used in the various hospitals.

Local Chapter News

C. P. Neidig, F.A.I.C.

Chicago

Chairman, Herman S. Bloch.
Chairman-Elect, Bruce M. Bare.
Vice-Chairman, W. B. Hendry.
Secretary-Treasurer, Louis Koenig.
Representative to National Council, Gene Abson.

The Chicago Chapter will present its Honor Scroll to Dr. Otto Eisenchiml, F.A.I.C., at a meeting to be held October 7th, at the Furniture Club in Chicago. The award is made to Dr. Eisenschiml in recognition of his outstanding work in the chemistry of vegetable oils and his untiring efforts to promote the professional prestige of the chemist.

Dr. Gustav Egloff, Hon. A.I.C., and Dr. Louis Koenig, F.A.I.C., will speak. Other speakers include Paul M. Angle, president of the Chicago Historical Society, and Frederic Babcock, editor of the Magazine of Books, *Chicago Sunday Tribune,* who will discuss Dr. Eisenschiml's abilities as historian and author.

New York

Chairman, Martin Meyer.
Vice-Chairman, Lincoln T. Work.
Secretary-Treasurer, M. J. Kelley.
Representative to National Council, Karl M. Herstein.
Publicity, G. A. Kirton.

The New York Chapter will hold its first meeting of the season on Thursday, October sixth, at 6:30 p.m., at Major's Cabin Grill, 33 West 33rd Street, New York, N.Y. A. J. Nydick, F.A.I.C., patent lawyer, will speak on "Exploiting a Patent."

Mr. Nydick is well known in the field of patent law, specializing in the chemical phase of this field. He has also been active in furthering the professional status of the chemist. In his talk, he will stress both chemical process and product patents.

Niagara

Chairman, James Ogilvie
Vice Chairman, Bert Wetherbee
Secretary-Treasurer, M. H. Fleysher
Representative to National Council, James J. Pallace, S.J.
Reporter to The Chemist, Lyle H. Mahar

Chairman Ogilvie informs us that the Niagara Chapter is a member of The Techical Societies Council of the Niagara Frontier, which has as one of its objectives the promotion of scientists including members of its twenty-three constituent societies) to public service posts, which are all too frequently filled by political favorites. He sends the following report of the Public Relations Committee of the

Council, which appeared in *Technical Societies News*:

Public Relations Committee Report

The Technical Societies Council through the Public Relations Committee has taken steps to get technical representation on public boards and commissions. It has taken much effort but progress has been made. Special effort has been put forth in connection with openings on the Public Service Commission, State Building Code Commission, Niagara Frontier Authority and the Niagara Frontier State Park Commission.

Letters have been forwarded to Governor Thomas E. Dewey giving the objectives of the Technical Societies Council and information regarding the proposed men. It is the intention of the Committee in suggesting names to show the appointing authorities that there are competent technical men available for service on the various commissions. Replies have been received from members of Governor Dewey's staff acknowledging these letters and giving assurance that full consideration would be given to the Committee's suggestions.

In some cases, the daily press indicated that appointments would be given to men of no technical training, little administrative experience, but with certain political backing. When this information came out, new representations were made to the Governor, which were acknowledged with assurances that every consideration would be given to the suggestions. The Committee desires to draw to the attention of all members of the Technical Societies that some of the appointments made on Commissions, which deal in highly technical matters affecting the daily lives of the people of this state, many business activities and the general prosperity of the state, have been made to prominent political appointees close to Governor Dewey, or a re-appointment of a previous member of the Commission.

Despite the several instances in which non-technical men have been appointed, the Council and its Public Relations Committee continue to fight for recognition of technical men and their appointment to Committees which would benefit through their services.

—*Technical Societies News*

Ohio

Chairman, Robert B. Waters
Chairman-elect, George F. Rugar.
Secretary-Treasurer, Harold M. Olson.
Representative to National Council, G. M. Juredine.

The Ohio Chapter planned a "Let's Get Acquainted" picnic at Linwood Park, Vermilion, Ohio, on Lake Erie, September 17th. Members were asked to bring their families and picnic baskets.

New York Chapter Meetings 1949-1950

November 16, 1949.

Discussion meeting: "Shall the Institute begin a campaign to secure licensure for chemists in New York State?"

January 5, 1950.

Student meeting. Special invitation to seniors and graduate students in local universities. "Opportunities for Chemists in Lab and Non-Lab Positions."

February 15, 1950.

Dinner meeting. Honorary Membership Award.

April 26, 1950.

Discussion meeting: "Methods of Achieving Professional Status in the Minds of the Public."

May 24, 1950.

Annual Honors Meeting. Dinner, elections, presentation of Student Medals and Honor Scroll.

For Your Library

Patent Law

By Chester H. Biesterfeld. Second edition, February, 1949. *John Wiley & Sons, Inc.* $4.00.

The second edition of this work, like the first, is predicated upon a series of lectures delivered by the author at the University of Delaware. For the preparation for and delivery of these lectures at a university, the author is to be especially commended. As has been frequently stated, our industrial development is to be attributed largely to the protection afforded by the patent system, and also, that the greater the strength of the patents granted, the stronger will be the foundation upon which a particular, and indeed all, industry is built.

The author presents a thorough and readable exposition of the substantive law underlying the granting of patents, and also the subsequent throes of maintaining them, that is, upholding their validity.

Twenty-one chapters are included. Each is concise, and a brief opening statement as to the subject matter is followed by a setting forth of various dependent phases, with quotations from outstanding decisions in support thereof. Further, the chapters are well sub-headed, thus making reference to any particular subject relatively easy.

Mention more especially may be made of the chapters dealing with "Permissible Breadth of Chemical Claims"; "Unpatentability of Uses and Products of Nature"; "The Patent Application and Prosecution Thereof"; "Licenses," and "Searches."

This edition, as the author states, affords "the general reader a simple, understandable treatment of each of the principal subjects of the substantive law, supported by citations and quotations taken from court decisions."

In conclusion, it may be added that the Rules of Practice of the U. S. Patent Office recently were revised, with the revisions being effective March 1, 1949. Hence, the numbers of the rules referred to in the text do not conform with those previously in force. Thus, former Rule 75 is now Rule 131. The work concludes with a rather extensive bibliography and table of cases, and a comprehensive index.

—Dr. Lloyd Van Doren, F.A.I.C.

Preparation and Characteristics of Solid Luminescent Materials

Symposium Held at Cornell University, October 24-26, 1946. Edited *By G. R. Fonda and Frederick Seitz. John Wiley and Sons, Inc.,* 1948. *xv. plus* 459 *pp.* $5.00.

Starting from the fundamental work of the brilliant German physicist, Philipp Lenard, this collection of papers brings the subject of the properties and preparation of "Phosphors" up to date in its widest significance. It is the response of these natural and artificial phosphors to excitation and the nature of their emission which determines their suitability in luminescent (fluorescent) lighting. The growth of this art is founded on a close coordination of chemical and physical investigations by leading workers in universities and technical institutes, as well as in the industries affected, RCA, General Electric Company, Westinghouse Lamp Division, Eastman Kodak Company, etc.

Since the early recognition of the importance which relatively minute traces of "foreign" ingredients might have upon the luminescent properties of crystals, the number of combinations made and analyzed has reached the sizable number of 1100, approximately.

There are twenty-nine interesting and authoritative papers in the symposium and a closing discussion on luminescence, experiment and theory. Incidentally, the theory is not overly burdened with the metaphysical abstractions of extreme quantum mechanics.

The symposium was sponsored by the Division of Electron Optics of the American Physical Society, and was published under the auspices of the National Research Council. It is of interest basically to chemists, physicists, and illuminating engineers whose line of activity brings them into contact with photochemical processes.

—Dr. E. E. Butterfield, F.A.I.C.

The Basis of Chemotherapy

By Thomas S. Work and Elizabeth Work. Interscience Publishers, Inc. 435 *pp.* $6.50.

Although there have been relatively tremendous advances in the field of chemotherapy during the past decade or more, the books on this subject have been comparatively scarce and unsatisfactory. It is, therefore, with a great deal of satisfaction that we receive such a well written book which fills this gap in our literature on chemotherapy in such an admirable manner.

The authors cover their subject in a thorough and logical order, starting with the works of Ehrlich through and including the newer antibiotics. Not only are chemotherapeutic compounds covered, but there are also well-written chapters deal-

ing with cell metabolism, essential metabolites, enzyme inhibition, drug antagonism, drug resistance, and relation of structure and activity of drugs.

The reviewer can give this volume the highest recommendation and unqualified praise. It should be well received and become a part of the library of every biologist, biochemist, and organic chemist.

—John B. Rust, F.A.I.C.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Some of the following European books may be valuable to American chemists specializing in the various fields of chemistry:

(A) Urban & Schwarzenberg (Munich 2): *Praktikum der klinischen Untersuchungsmethoden*, by M. Klopstock and A. Kowarski, revised by J. Tillmans and G. Ohnesorge, 19th edit., 504 pp. 11 colored plates. (DM 16.) "The Klopstock" is a standard book on chemical, microscopic and bacteriological determinations of excreta and tissues. Comparing the new volume with my old one (10th edit.), I note a number of newer laboratory methods and changes in some of the illustrations, but the arrangement of the text has not been touched. • *Medizinische Terminologie*, by Herbert Volkmann, 33rd edit., 524 pp. (DM 20.) Very brief definitions of thousands of medical, chemical, physical, botanical and zoological terms, with 432 illustrations. This book should be helpful to translators. • *Leitfaden der Physiologie*, by Armin von Tschermak-Seysenegg, 1949. 320 pp. with 191 excellent illustrations. (DM 15.) Of special interest are the up-to-date chapters on carbon hydrates, fats and lipoids, albumins, ferments and enzymes, endocrines, excretions, etc. Some of these and other physiological problems (including nutrition, digestion, and metabolism) are discussed from a more medical point of view in *Physiologie*, by Erich Schuetz, 3rd edit., 240 pp., 215 illustrations. (DM 11.) A distinguishing feature of this volume is its final chapter on the etymology of scientific words, many of which are used in everyday German and English. • *Verdaulichkeit, Bekoemmlichkeit und Wirksamkeit unserer Nahrung*, by Heinrich von Hoesslin, 2nd edit., 84 pp. (DM 4.60) Author reports in general manner on problems of digestibility, wholesomeness and efficacy of food. • *Angewandte Pharmakologie*, by Erich Hesse, 2nd edit., 420 pp. (DM 18.) and *Klinisches Rezept-Taschenbuch*, by Georg Banzer, 67th edit., 448 pp. (DM 10.) are addressed to physicians; the latter volume may also be useful to pharmaceutical chemists because it reveals the chemical nature of many well-known German trade-mark items and proves that pharmaceutical-chemical research in the U.S., in many respects, is by now far ahead of that of Germany which had held first place for so long. • *Leitfaden der Pharmakologie*, by Fritz Hildebrandt, 1949, 154 pp. (DM 7.) Compressed into only 143 pages of text, arranged according to the standard work of Meyer-Gottleib, the author gives an excellent review of the present stand of the whole field of pharmacology.

(B) Rascher Verlag (Zuerich): *Neue Karte der Atome*, by F. Dessauer and A. Loebenstein. A map that can be folded to be carried in the pocket or hung up on the blackboard; it gives for each element its most important (19) chemical and physical properties, and on supplementary tables additional information as to its occurrence, isotopes, etc. As science marches on, corrected sheets of a particular element can easily be pasted on, so as to keep the map up-to-date. Such seemingly low-

priced maps should be made available in this country, too. • *Grundlagen der Werkstoffchemie,* by E. Brandenberger, 1947, 298 pp., 98 illustrations, describes the structure and constitution of metals, alloys, cement and other materials by means of the latest findings of crystal chemistry. • *Elektrochemie,* part 1, by A. Stieger, 1947, 138 pp., brings the theoretical foundation of electrochemistry, developing it from a viewpoint derived from the modern concept of the structure of the atoms.

(C) Faber & Faber Ltd. (London W. C. 1): *Principal Drugs,* by A. L. Morton, 12 edit. 119 pp. (2s. 6d). Brief information about drugs in common use, written primarily for nurses, but of interest also to others who produce or handle drugs. The same is true of *Materia Medica and Pharmacology,* by G. Hindes and D. G. Ardley, 6th edit. 212 pp. (7s. 6d.).

(D) Dieterich'sche Verlagsbuchhandlung (Wiesbaden) is the publisher of the "FIAT Review of Natural Science and Medicine in Germany during the War-Years 1939-1946." Many of the 88 volumes published up till now in the German language are already out of print; others are still available, e.g., *Analytische Chemie,* by W. Klemm, and *Biochemie,* part 1, by R. Kuhn. Each FIAT volume contains 150 to 250 pp. and is on sale at DM 10. Another valuable Dieterich volume of which an English translation is now in preparation, is *Lehrbuch der Elektrochemie,* by Gustav Kortuem. 1948, 495 pp. (DM 28). This book deals with the theoretical principles of electrochemistry, including the latest research developments; a few yet unsolved problems are discussed in the text with the intention to inspire capable students to original research work.

(E) The Shaw Publishing Company (London, E.C.4) is known for its *Manufacturers' Practical Recipes.* Even though a completely revised edition of this almost fifty-years old compilation of some 7000 industrial recipes has just come off press (price 70s.), it seems to me that many of its formulas are antiquated by American standards and laws, e.g., practically none of the veterinary remedies could be prepared or sold in the U.S. without conflicting with FDA regulations. It may give the reader manufacturing ideas, which, however, should be thoroughly examined in consultation with experts before being used here.

Booklets

The following publications of the National Bureau of Standards may be obtained at listed prices from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.:

RP1917 "Expansive Characteristics of Hydrated Limes and the Development of an Autoclave Test for Soundness," by Lansing S. Wells, Walter F. Clarke, and Ernest M. Levin, 26 pp. 15 cents.

RP1933 "Chemical Durability, Specular Gloss, and Transmittance of Optical Glasses," by Donald Hubbard and Gerald F. Rynders, 6 pp. 10 cents.

RP1924 "Effect of Temperature on the Volume of Leather and Collagon in Water," by Charles E. Weir. 7 pp. 10 cents.

RP1929 "Purification, Purity, and Freezing Points of 30 Hydrocarbons of the API-Standard and API-NBS Series," by Anton J. Streiff, Janice

C. Zimmerman, Laurel F. Soule, Marie T. Butt, Vincent A. Sedlak, Charles B. Willingham, and Frederick D. Rossini. 35 pp. 20 cents.

RP1937 "Copolymerization," by Robert Simha and Leo A. Wall. 23 pp. 15 cents.

"New Infrared Analyzer." Information available from the Perkin-Elmer Corporation, Glenbrook, Connecticut.

"New Series of Marlow Self-Priming Centrifugal Pumps." 12-page catalog. Marlow Pumps, Ridgewood, New Jersey.

"New, Comprehensive Catalog of *Metalab* Laboratory Equipment." Includes section on laboratory planning and layout. Metalab Equipment Corporation, 1529 Dean St., Brooklyn 13, N. Y.

"New Laboratory Marking Pencil." The Emil Greiner Company, 20-26 North Moore Street, New York 13, N. Y.

"Precision - Shell Evaporometer." Request information from Precision Scientific Company, 3737 W. Cortland Street, Chicago 47, Illinois.

"Brominating Agent. Pyridinium Bromide Perbromide." Information sheet. Jasons Drug Company, 1085-87 Myrtle Avenue, Brooklyn 6, New York.

Crawford H. Greenewalt, F.A.-I.C., president of E. I. du Pont de Nemours and Company, Wilmington 98, Delaware, will send, to those who request it from him, a copy of the illustrated booklet, "This Is Du Pont," which tells the story of this great chemical firm.

"Technical Bulletin 77. New Comparison Chart on Fatty Acids." Available from Archer- Daniels-Midland Company, 600 Roanoke Building, Minneapolis 2, Minnesota.

"Scientific Apparatus and Methods. Spring 1949." Includes catalog revisions. E. H. Sargent and Company, 155-165 East Superior Street, Chicago, 11, Illinois.

"Catalog. 1949." Includes books on science and technology. Request it from Presses Universitaires de France, 7 Place de la Sorbonne, Paris 5 (e), France.

"HV-1 Vacuum Pump." Request information from Eitel-McCullough, San Bruno, California.

"Technical Data Sheet P-12. Polyco 337 Textile Finish." Descriptive leaflet about a new textile stiffener. Request it from American Polymer Corporation, Peabody, Mass.

"New Wachs National Pipe Saw." Illustrated folder. The E. H. Wachs Company, 1525 North Dayton Street, Chicago 22, Illinois.

"Witcotes: Asphaltic Mastics." New publication by Whitco Chemical Company, 295 Madison Avenue, New York 17, N. Y.

"Old Medical Books." Catalogue 9, 1949. Request it from H. A. Feisenberger, 11a, Duke Street, Manchester Square, London, W.1, England.

"Technical and Scientific Books. 1949." Catalog. Chemical Publishing Company, Inc., 26 Court Street, Brooklyn, N. Y.

"Tables of Scattering Functions for Spherical Particles." National Bureau of Standards Applied Mathematics Series No. 4. 119 pp. Price 45 cents. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

"Ethyl Cellulose, Properties and Uses." Technical booklet. Hercules Powder Company, Wilmington, Delaware.

"Cracking the Soybean." Color-illustrated brochure describing industrial uses of soybean oil. Request it from Archer-Daniels-Midland Company, 600 Roanoke Building, Minneapolis 2, Minn.

"Facts About Toxaphene Insecticides," 18-page booklet. Available from Hercules Powder Company, Wilmington, Delaware.

"Constant Temperature Control." Manual and catalog. Available from The Emil Greiner Co., 20-26 North Moore Street, New York 13, New York.

"Allen Industrial Filters Available for Chemical Laboratories." Request information from The Allen Industrial Filter Company, 25 South St. Clair Street, Toledo, Ohio.

"Catalog Essential Oils, Balsams, Oleoresins, Flavors and Perfume Materials." Third quarter 1949. Magnus, Mabee & Reynard, Inc., 16 Desbrosses Street, New York 13, N. Y.

"Modern Design for Instrument Panels and Cubicles." 12-page, illustrated bulletin with engineering data. Request it from Falstrom Company, Passaic, N.J.

"Current Export Bulletin No. 524." Includes recently decontrolled items, some of a chemical nature. Available at U. S. Department of Commerce field offices.

"NBS Research Paper RP 1943, Compilation of Thermal Properties of Hydrogen in its Various Isotopic and Ortho-Para Modifications." Price 40 cents. Order from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C.

Condensates

Ed. F. Degering, F.A.I.C.
Armour Research Foundation

The name silicone now is applied to a variety of organopolysiloxanes, or to any substance in which alkyl or aryl groups are bonded directly to the silicon atoms of a siloxane chain or network. The products may be oils, elastomers, crystalline solids, or resins, depending upon the composition and the molecular configuration. Some distinctive properties such as thermal stability, small change of viscosity with temperature, surface active properties, and low water absorption make certain of the silicone polymers interesting and valuable.

—*The Bulletin.*

Astrotone BR synthetic musk, of du Pont, is priced at about $125 per pound. It is estimated that a pound of pure musk, a fixative for perfumes which was once obtained from a male Tibetan deer, would be valued at about $40,000 per pound.

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—Carlysle.

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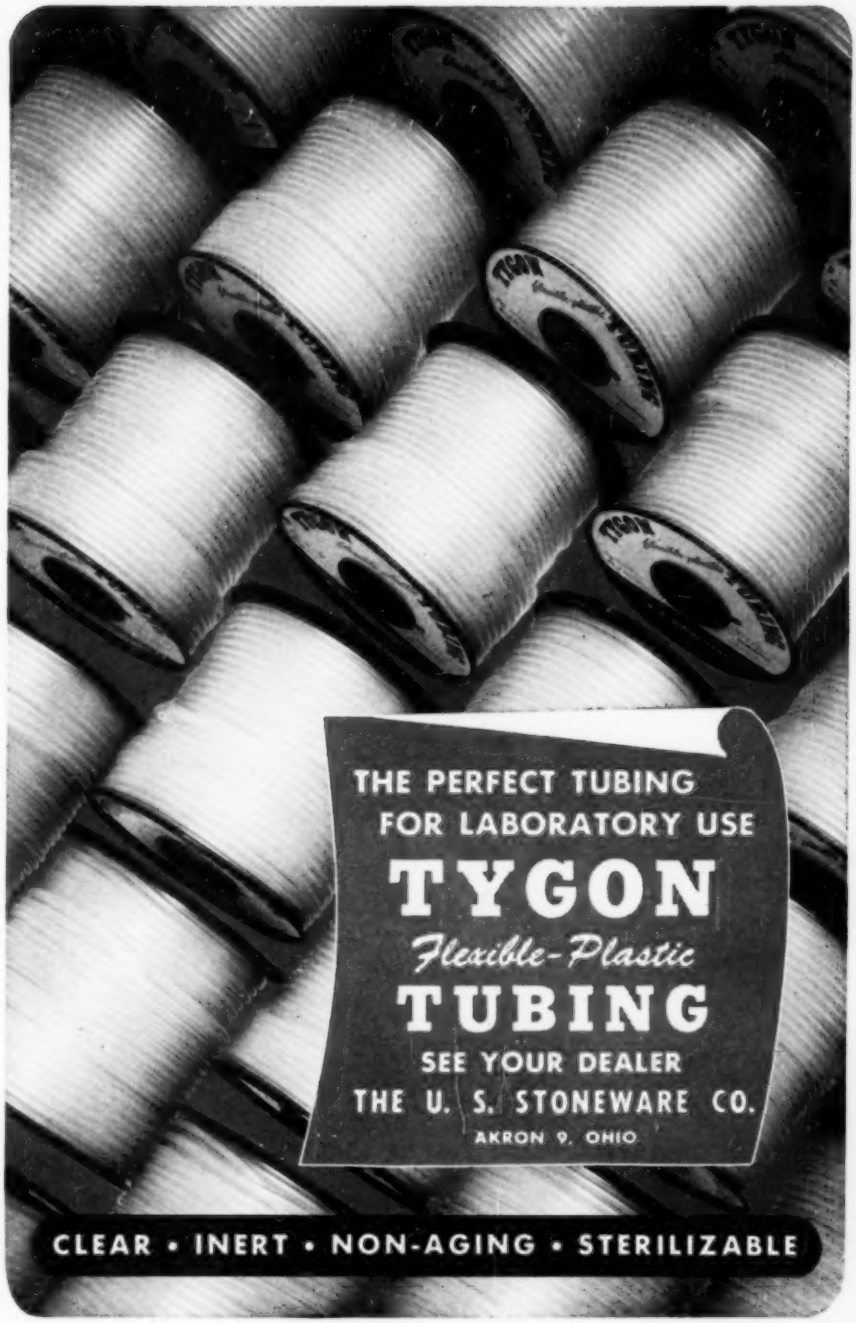
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